Grantsmanship

Jerry Heindel, Ph.D.
Scientific Program Administrator

Principles Of Grantsmanship: Preparing a Discover Application

Abstract

Introduction (15 pages)

- Program Introduction and Statement of Objectives
- Organization and Administrative Structure

Individual Research Plans (25 pages/project)

- Specific aims page
- Background and significance
- Preliminary studies
- Research design and methods

Facility Cores

- Function
- Role as resource to program as whole

Abstract

Identify theme:

- What is the problem addressed and the overall theme
  (Must be disease focus and public health problem!!)
- Who cares

Solution:

- Hypothesis/goal/product

Plan:

- Integrative Approach
- Outline each project
- Techniques/methodologies used
- Translation

Benefits:

- Expected results
- Application/benefit

Program Introduction and Statement of Objectives (~10 P)

- Disease focus, its importance and role of environment
- Overall Theme for Center that ties everything together
- Overall goal (Product) of Center
- Overall Hypothesis that links disease to environment and all the projects together

(Review will focus on a well integrated and interdisciplinary program around a specific theme)

Program Introduction and Statement of Objectives

State specific hypotheses of individual research projects and how they relate to overall hypothesis and overall theme.

- Strategy for achieving goal (chart useful)
  - Relationship of each project to goal
  - Relationship of cores to goal
  - Plans for **translation of findings** (details)
  - Describe interactions among projects and investigators
  - Describe expected **synergy/advantage of proposed program** as part of DISCOVER Center as compared to independent research projects.

Program Introduction and Statement of Objectives

- Summarize what is new/novel/innovative/paradigm changing about the approach and the results expected and their impact on the field.
- Show a timeline of the overall goal (perhaps 10yrs) and what results are expected at 3-4 years and at the end of grant period. Show the contributions of each project to the timeline.

Program Organizational and Administrative Structure I. (~3-5 P)

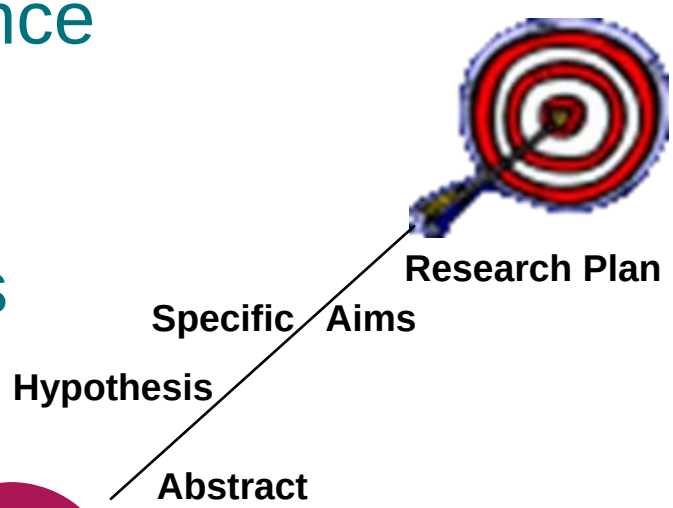
- Describe role of Director and Lead Physician Scientist and Project Leaders for individual projects.
- Describe how they will work together to **ensure integration and translation.** Focus on importance of Director and Lead Physician Scientist!
- Discuss the function of Internal and External advisory groups and expertise needed….how will they be used?
- Describe relationship of DISCOVER Center to existing research and components of applicant institution.

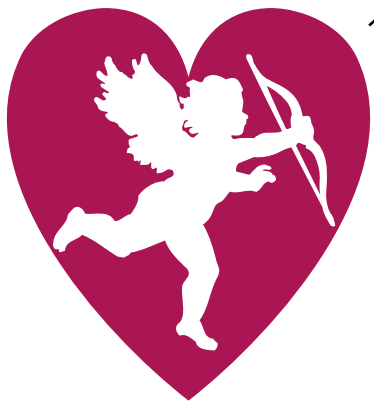
Program Organizational and Administrative Structure II.

Chart and verbiage to describe the organizational structure showing administrative plan that emphasizes an integrated, coordinated research team.

- Scientifically and administratively:
  - Who reports to whom
  - Who interacts with whom
  - Who learns from whom (⟷) information and data flow…
- Describe how administrative core supports program.

- **Specific Aims**
- Background and Significance
- Preliminary Studies
- Research Design/Methods
- Literature Cited





Discover Center Individual Projects

Basic Science/Mechanistic (at least 2)

- Animal studies
- In vitro studies
- Technology/product development
- Focus should be on mechanism of environmental agent in disease etiology, susceptibility or progression and the development of endpoints/biomarkers or intervention studies that can be translated to humans. These studies should build on and interact with the clinical research projects.

Patient Oriented Clinical Research (at least 2)

- Investigator can be clinician or epidemiologist.
- Focus should be on the use of endpoints/biomarkers or mechanistic data from the basic science projects in understanding the role of environment and gene-environment interactions in disease etiology, susceptibility or progression and or interventions.

Applicants must clearly identify which projects should be considered basic and clinical.

Individual Project Guidelines

- Each one should be a stand alone R01
  - Focused
  - Hypothesis driven
- Each one must emphasize the relationship to the theme and goal and how the research will play a role in the translation of the research to clinical practice and improved public health policy.
- Each one must emphasize how it will interact and coordinate with the other projects and how the results will be synergistic because of the interactions.
- There must be a clear indication as to whether each project is considered a part of the basic or clinical portion of the center.

Specific Aims Section (One Page)

Introductory Paragraph

- Statement of long term health-related goal. What is the disease and role of environment? (1 sentence)
- Background/significance of problem (1-2 sentences)
- Preliminary data/state of the art (2-3 sentences)
- Data gaps/controversy (1-2 sentences)
- Clearly defined mechanistic hypothesis/specific goal (1-2 sentences)

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The flow of logic must be compelling!!!

Specific Aims (Cont'd)

Specific Aims/Milestones

- 2-5 aims (1 sentence each)
- Specifically focused to prove hypothesis/develop product
- Logical order with no dead ends

Summary

- Emphasize novel product and innovative approach and impact on field (2-3 sentences).
- Clearly define the relationship of the hypothesis and goals to other projects in the Center and the relationship to the overall theme. (Rationale for importance of this project to Center.)
- Clearly indicate the importance of the project to the translational focus of the Center.

Background and Significance

Goal: *To convince the reviewers that you are familiar with the field and to justify need for proposed study.*

- Logical development of background information that forms basis of proposal.
- Critical evaluation of current knowledge…show how proposed work builds on previous work.
- Identification of data gaps, conflicts, needs, what's new and novel and innovative.
- Importance of research and how it will fill need.

Preliminary Data

Goal: *To establish your experience and competence in the area of application.*

Convince reviewers:

- that you are familiar with and have done all the techniques proposed including data analysis and interpretation…
- that the work is feasible…
- that suitable groundwork has been done (preliminary data)

Using:

- simple graphs and tables with descriptive legends
- no extraneous or irrelevant data

Experimental Methods/Research Plan

For Each Aim/Milestone:

- Rationale for approach
- Experimental Design in detail including data analysis and interpretation
- Potential Difficulties/Limitations
- Alternative approaches

Justify everything including number of animals, assays, statistical analysis, timetable and that you have experience and expertise needed.

GRANTSMANSHIP: Facility Core (Centralized Services to 2 or more projects)

- Describe core function.
- Describe the facilities, techniques and professional skills provided.
- Justify the need and who will use it.
- Justify the economy of effort provided…provide details $$ (Table form helpful). What would happen without it and how would that inhibit progress?

Common Problems with Applications

- Overly ambitious.
- Lack of focused hypothesis for the Center and a specific long term goal.
- Lack of actual evidence of a plan for translation.
- Lack of concrete evidence for involvement of both PI and Lead Physician-scientist in the overall program and individual projects. Are they really in control and coordinating the work?
- Lack of details of how each Research Project is integrated into the theme and how they will work together towards a common goal.
- Lack of concrete details on how the Center research will lead to new discoveries and synergistic interactions that could not occur with other mechanisms.